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REMARKS

Applicants acknowledge receipt of the Office Action of 28 JAN. 2004 and request reconsideration of the claims, as amended and added.

Claim Rejection - Section 112

The Office Action rejected all the claims as "not standing on their own" because reference numerals were included. The reference numerals have now been deleted, to avoid controversy. However, the Office is respectfully reminded that MPEP section 608.01(m) states: "The use of reference characters is to be considered as having **no effect** on the scope of the claims." Reference numerals are provided merely for the convenience of the reader, and to confirm that "every feature of the invention specified in the claims" is supported by the drawings, as required by Rule 83(a). Reference numerals are widely used in Europe and Japan, and by US applicants filing abroad.

Claim Rejection - Section 102

Claims 1-3 & 5-21 were rejected as anticipated by FUKUDA USP 4,175,678, on the theory that the recitation of a structure which causes the device to operate with a particular ratio of spraying time to "stop time" or "off time" is merely a statement of *intended use*.

It is **not accurate** to characterize the recitations in independent claims 1, 2 and 3 as statements of intended use. In fact, they are statements of **how the device functions**, when actuated by pushing down the button. MPEP section 2173.05(g) states: "There is nothing inherently wrong with defining some part of the invention in functional terms" and the LANDIS treatise on patent drafting, pages III-42, II-43 and III-44, makes a similar point.

Enclosed are sketches which show that the device of the

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present invention includes an intermittent "injection" (spraying) mechanism and that, even when the main aerosol valve is continuously open, the spraying action is intermittent. This is a significant functional difference from how FUKUDA operates. In FUKUDA, if the valve is opened in a normal operation, the contents of the container are continuously sprayed out.

In FIG. A (MEKATA) and FIG. a (FUKUDA), each valve is closed. FIG. A corresponds to FIG. 1 of the present invention.

In FIGS. B & C (MEKATA) and FIGS. b & c (FUKUDA), each valve is open. FIG. B. corresponds to FIG. 2(a) and 2(b) and FIG. C corresponds to FIG. 2(c) of the present application.

In the device of the present invention, when the valve is opened, the condition of FIG. B (no spraying) and the condition of FIG. C (spraying) occur alternately and automatically, without the finger on the button moving at all. By contrast, with the FUKUDA device, as long as the finger is on the button, spraying is continuous. In practical terms, the FUKUDA subjects the person being sprayed to a "freezing" sensation, which the present invention avoids. Claims 1-3 make this clear, by the recitation "in order to obtain a sufficient yet not excessive cooling?" Applicants respectfully submit that the anticipation rejection of claims 1-3 stems from a misinterpretation, and must be withdrawn.

New claim 22 recites the structure of the intermittent mechanism in greater detail. Claim 22 is well supported in the specification and drawings, particularly FIGS. 2(a) to 2(c), which describe the steps of the intermittent spray process. As described at page 15, lines 16-20, in a first step, depression of valve stem 1 releases pressurized content from the aerosol can via port 11 into the space surrounding spring 7, and the pressure of the content urges needle 6 and piston 5 leftward, while the content fills the (closed) pressure chamber 20 between them, resulting in the configuration shown in FIG. 2(b), with spring 7 compressed.

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In a second step, described from page 15, line 26, through page 16, line 11, as differential pressure between port 11 and pressure chamber 20 diminishes, spring 7 no longer faces a counter-force, and drives needle 6 rightward to the position shown in FIG. 2(c), thereby separating needle 6 from engagement with piston 5 and venting pressure chamber 20 through the nozzle formed in piston 5 (for a predetermined "injection time"). This diminishes the pressure in chamber 20 to the pressure of ambient air, removes any counter-force to spring 8, and thereby allows spring 8 to drive piston 5 rightward, closing the valve (for a predetermined "stop time") by returning the components to the configuration shown in FIG. 2(a), until pressure coming through port 11 builds up enough to start the cycle all over again. This is described from page 16, line 25, through page 17, line 5.

FUKUDA (USP 4,175,678) refers to intermittent spraying in col. 4 of the patent, but spraying is interrupted by cooling of a bimetallic plate 17, and there is no suggestion of the intermittent spraying occurring multiple times per second, as recited in dependent claims 5-7, or that FUKUDA even considers the issue of the cooling effect on skin of an aerosol spray. FUKUDA has no motivation to attempt the solution provided by the present invention, since he is concerned with preventing explosion of discarded cans (see col. 1, lines 30-50), not with making topical spraying more comfortable.

FUKUDA discloses no counterpart of the piston 5 and needle 6 components of the present invention, and has no spring means 7, 8 capable of reciprocating such elements to create rapidly cycling intermittent spraying functionality.

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AUTHORIZATION TO CHARGE

The Office is authorized to charge \$ 102.00 to Deposit Account 23-0442, representing the \$ 86 fee (FEE CODE 1201) for claim 22 as a fourth independent claim and the \$18 fee (FEE CODE 1202) for claims in excess of 20; claim 4 was cancelled so claim 22 represents only a 21st claim, not a 22nd claim.

CONCLUSION

In view of the foregoing amendments, it is respectfully submitted that independent claims 1-3 and 22 recite sufficient structure and patentably distinguish over FUKUDA and the other art of record, taken singly or in combination. The other claims 5-21 are dependent upon claims 1-3 and therefore are also in condition for allowance.

If the Examiner notes any remaining informalities which need to be resolved before passing the application to issue, a telephone call to Applicants' counsel is invited.

Respectfully submitted,

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Enclosures:

Sheet of sketches contrasting invention & FUKUDA
MPEP 608.01(m)
MPEP 2173.05(g)
LANDIS treatise pages III-42, III-43 & III-44

EXPLANATORY SKETCHES:

The Present Invention

Fukuda

Fig. A

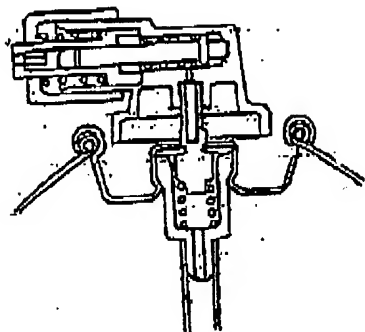


Fig. a

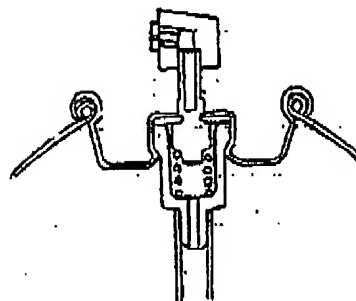


Fig. B

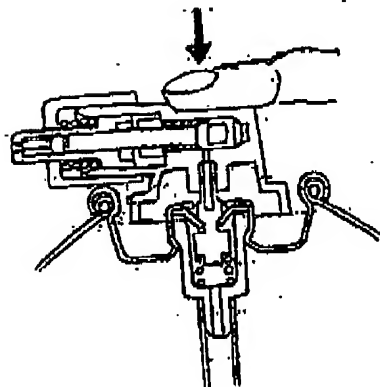


Fig. b

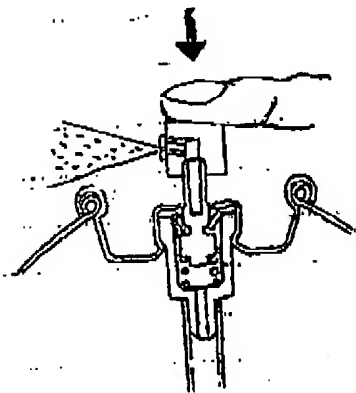


Fig. C

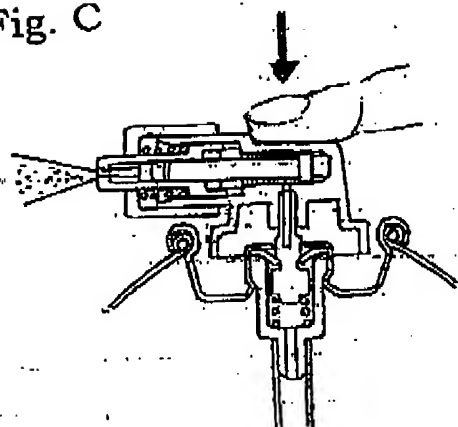
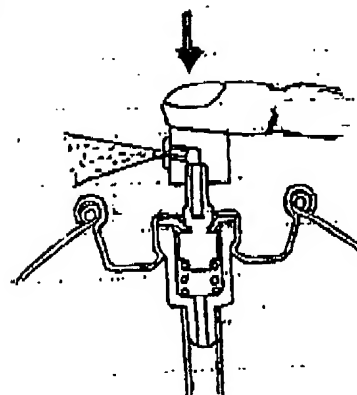


Fig. c



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608.01(m)

MANUAL OF PATENT EXAMINING PROCEDURE

There may be plural indentations to further segregate subcombinations or related steps. In general, the printed patent copies will follow the format used but printing difficulties or expense may prevent the duplication of unduly complex claim formats.

Reference characters corresponding to elements recited in the detailed description and the drawings may be used in conjunction with the recitation of the same element or group of elements in the claims. The reference characters, however, should be enclosed within parentheses so as to avoid confusion with other numbers or characters which may appear in the claims. The use of reference characters is to be considered as having no effect on the scope of the claims.

Many of the difficulties encountered in the prosecution of patent applications after final rejection may be alleviated if each applicant includes, at the time of filing or no later than the first reply, claims varying from the broadest to which he or she believes he or she is entitled to the most detailed that he or she is willing to accept.

Claims should preferably be arranged in order of scope so that the first claim presented is the least restrictive. All dependent claims should be grouped together with the claim or claims to which they refer to the extent practicable. Where separate species are claimed, the claims of like species should be grouped together where possible. Similarly, product and process claims should be separately grouped. Such arrangements are for the purpose of facilitating classification and examination.

The form of claim required in 37 CFR 1.75(e) is particularly adapted for the description of improvement-type inventions. It is to be considered a combination claim. The preamble of this form of claim is considered to positively and clearly include all the elements or steps recited therein as a part of the claimed combination.

For rejections not based on prior art, see MPEP § 706.03.

The following form paragraphs may be used to object to the form of the claims.

§ 6.18.01 Claims: Placement

The claims in this application do not commence on a separate sheet in accordance with 37 CFR 1.52(b). Appropriate correction is required in response to this action.

Examiner Note:

This paragraph should only be used for applications filed on or after September 23, 1996.

§ 7.29.01 Claims Objected to, Minor Informalities

Claim[1] objected to because of the following informalities:
[2]. Appropriate correction is required.

Examiner Note:

1. Use this form paragraph to point out minor informalities such as spelling errors, inconsistent terminology, etc., which should be corrected.
2. If the informalities render the claim(s) indefinite, use form paragraph 7.34.01 instead to reject the claim(s) under 35 U.S.C. 112, second paragraph.

§ 7.29.02 Claims Objected to, Reference Characters Not Enclosed Within Parentheses

The claims are objected to because they include reference characters which are not enclosed within parentheses.

Reference characters corresponding to elements recited in the detailed description of the drawings and used in conjunction with the recitation of the same element or group of elements in the claims should be enclosed within parentheses so as to avoid confusion with other numbers or characters which may appear in the claims. See MPEP § 608.01(m).

Examiner Note:

1. Use of this paragraph is optional. You may instead choose to correct the error yourself at time of allowance by informal examiner's amendment.
2. If the lack of parentheses renders the claim(s) indefinite, use form paragraph 7.34.01 instead to reject the claim(s) under 35 U.S.C. 112, second paragraph.

§ 7.29.03 Claims Objected to, Spacing of Lines

The claims are objected to because the lines are crowded too closely together, making reading and entry of amendments difficult. Substitute claims with lines one and one-half or double spaced on good quality paper are required. See 37 CFR 1.52(b).

Amendments to the claims must be in compliance with 37 CFR 1.121(c). Form paragraphs 6.33 and 6.34 may be used to inform applicant of nonentry of amendments to the claims.

§ 6.33 Amendment to the Claims, 37 CFR 1.121

The amendment to the claims filed on [1] does not comply with the requirements of 37 CFR 1.121(c) because [2]. Amendments to the claims filed after March 1, 2001 must comply with 37 CFR 1.121(c) which states:

(c) Claims.

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2173.05(f)

MANUAL OF PATENT EXAMINING PROCEDURE

invention with a reasonable degree of clarity and precision.

A CLAIM IS NOT *PER SE* INDEFINITE IF THE BODY OF THE CLAIM RECITES ADDITIONAL ELEMENTS WHICH DO NOT APPEAR IN THE PREAMBLE

The mere fact that the body of a claim recites additional elements which do not appear in the claim's preamble does not render the claim indefinite under 35 U.S.C. 112, second paragraph. See *In re Larsen*, No. 01-1092 (Fed. Cir. May 9, 2001) (unpublished) (The preamble of the *Larsen* claim recited only a hanger and a loop but the body of the claim positively recited a linear member. The examiner rejected the claim under 35 U.S.C. 112, second paragraph because the omission from the claim's preamble of a critical element (i.e., a linear member) renders that claim indefinite. The court reversed the examiner's rejection and stated that the totality of all the limitations of the claim and their interaction with each other must be considered to ascertain the inventor's contribution to the art. Upon review of the claim in its entirety, the court concluded that the claim at issue apprises one of ordinary skill in the art of its scope and, therefore, serves the notice function required by 35 U.S.C. 112, paragraph 2.).

2173.05(f) Reference to Limitations in Another Claim

A claim which makes reference to a preceding claim to define a limitation is an acceptable claim construction which should not necessarily be rejected as improper or confusing under 35 U.S.C. 112, second paragraph. For example, claims which read: "The product produced by the method of claim 1." or "A method of producing ethanol comprising contacting amylose with the culture of claim 1 under the following conditions" are not indefinite under 35 U.S.C. 112, second paragraph, merely because of the reference to another claim. See also *Ex parte Porter*, 25 USPQ2d 1144 (Bd. Pat. App. & Inter. 1992) where reference to "the nozzle of claim 7" in a method claim was held to comply with 35 U.S.C. 112, second paragraph. However, where the format of making reference to limitations recited in another claim results in confusion, then a rejection would be proper under 35 U.S.C. 112, second paragraph.

2173.05(g) Functional Limitations

A functional limitation is an attempt to define something by what it does, rather than by what it is (e.g., as evidenced by its specific structure or specific ingredients). There is nothing inherently wrong with defining some part of an invention in functional terms. Functional language does not, in and of itself, render a claim improper. *In re Swinehart*, 439 F.2d 210, 169 USPQ 226 (CCPA 1971).

A functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used. A functional limitation is often used in association with an element, ingredient, or step of a process to define a particular capability or purpose that is served by the recited element, ingredient or step. Whether or not the functional limitation complies with 35 U.S.C. 112, second paragraph is a different issue from whether the limitation is properly supported under 35 U.S.C. 112, first paragraph or is distinguished over the prior art. A few examples are set forth below to illustrate situations where the issue of whether a functional limitation complies with 35 U.S.C. 112, second paragraph was considered.

It was held that the limitation used to define a radical on a chemical compound as "incapable of forming a dye with said oxidizing developing agent" although functional, was perfectly acceptable because it set definite boundaries on the patent protection sought. *In re Barr*, 444 F.2d 588, 170 USPQ 33 (CCPA 1971).

In a claim that was directed to a kit of component parts capable of being assembled, the Court held that limitations such as "members adapted to be positioned" and "portions . . . being resiliently dilatable whereby said housing may be slidably positioned" serve to precisely define present structural attributes of interrelated component parts of the claimed assembly. *In re Venezia*, 530 F.2d 956, 189 USPQ 149 (CCPA 1976).

2173.05(h) Alternative Limitations

I. MARKUSH GROUPS

Alternative expressions are permitted if they present no uncertainty or ambiguity with respect to the question of scope or clarity of the claims. One acceptable form of alternative expression, which is

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depends largely on the prior art. In most apparatus cases, the precise manner — or structure — of a connection is not critical to novelty or unobviousness, in which case relatively broad words are used to state the connection, such as "connected to" or "mounted on" rather than "fixed to" or "bolted to," etc. Very often, means clauses (section 34) are used for conventional mountings, connections, etc., in both machine and electrical circuit cases (section 35). But the restrictions on the breadth of means clauses causes the author to recommend avoiding means clauses where naming an element. Using another noun than "means" and describing its function relative to another element can be done while maintaining sufficient claim breadth.

Summary

Connect the claim elements structurally, as required to make up a complete and operable combination. Use relatively broad words of connection where the prior art permits.

§ 30 Functional or Operational Expressions

A functional limitation attempts to define something by what it does rather than by what it is, i.e., its structure or ingredients. Functional language does not render a claim improper.^{30.1}

In addition to the structural cooperation, it is good practice also to specify the functional or operational cooperation between the elements, where this can be done without unduly limiting the claim. When this is done, the claim not only tells what the parts are and how they are mechanically interconnected or associated, it tells how they function together and operate on the workpiece to accomplish the result stated in the preamble.³¹ A functional limitation is evaluated like any other for what it fairly conveys to a person of ordinary skill in the art.

30.1. MPEP 2173.05(g); *In re Swinehart and Sfiligoj*, 439 F.2d 210, 169 U.S.P.Q. (BNA) 226 (C.C.P.A. 1971).

31. *In re Swinehart*, *id.*

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Functional or operational connectives in claim 1 are such expressions as "for the articles" in clause (a), "to support the container for oscillating movement with respect to the base" in clause (c), and "to shake the articles" in clause (d). Examples in MPEP 2173.05(g) include: "incapable of forming a dye within . . ."; "members adapted to be positioned"

Try to make each independent claim a complete, self-contained unit, comprehensible by itself. The connectives enable that.

The reader may have heard statements disparaging functional expressions, and may wonder if they should be avoided altogether. The answer is — definitely no! When properly used, statements of function or operation are usually welcomed by the Patent and Trademark Office. When not used to excess or to introduce unnecessary limitations into the claim, they make the claim more definite and easy to understand without having to refer to the specification.

Most problems with so-called functional statements arise when an attempt is made to predicate patentability on a purely functional statement, or to present extremely broad claims.

There is never any objection to functional statements that merely set forth the movements, actions, or results that necessarily follow from the structure previously recited. Thus, in claim 1, the capability of the container for oscillating movement follows once the double pivoted mounting of the container on the base has been stated. No magic words are necessary for functional statements. Such expressions as "so that," "for," "in order to" are typical. However, as paragraph 6 of § 112 of the statute says, means for accomplishing a function are structure claims, use of the preposition "for," as in [an article] "for" [accomplishing a function], is least likely to be an objectionable functional statement. The words "whereby" and "thereby" are often used, but have assumed stylized meanings described in section 32. Also, "means for" accomplishing a function clauses are very commonly used (section 34).

Some examples of straightforward, noncontroversial functional or cooperative statements:

a container *for* the articles . . . ["for" is very commonly used] to
support the container *for oscillating movement* . . .

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a turntable [element] on which the barrel [workpiece] is mounted [structural connection] *for rotation therewith* [cooperation or function] . . .

means for *reciprocating* the strand guide so that it moves . . . [in a stated way]. [means clauses are very common in stating cooperative relations (section 31)].

a pulse counter *responsive* to each pulse of current . . . *for counting* . . .

There are many different forms for this. Some special forms will be covered in the following sections and further examples. As usual, and as with virtually *every word in the claim*, the scope should be checked carefully. Make sure every word is really needed, particularly in the broader claims.

Watch vague and indefinite statements of cooperation, particularly the phrase "adapted to," which is likely to be objected to by the examiner as "insufficient structure to support functional statement." MPEP 2173.05(g) cites "adapted to" favorably by listing a precedent.^{31,1} One precedent says "adapted for" is not a limitation³² and one says it is a limitation.³³ But "adapted to" clauses were expressly sanctioned by the court.³⁴ Alternatively, use a "means for" clause under the guidelines in section 34. In *Ex parte Roggenburk*,³⁵ the Board held that a functional expression, "sealingly engaging," was an improper function statement, but that a "means for" clause of exactly the same scope would have been all right.

Summary

Relate the claim elements functionally to each other. That is, tell how the parts move or cooperate with each other to accomplish the overall result stated in the preamble. Tell the following things where applicable about each element:

- 31.1. *In re Venezia*, 530 F.2d 956, 189 U.S.P.Q. (BNA) 149 (C.C.P.A. 1976).
32. *In re Hutchinson*, 69 U.S.P.Q. (BNA) 138 (C.C.P.A. 1946).
33. *In re Laud and Rogers*, 151 U.S.P.Q. (BNA) 621 (C.C.P.A. 1966).
34. *In re Venezia*, 530 F.2d 956, 189 U.S.P.Q. (BNA) 149 (C.C.P.A. 1976).
35. *Ex parte Roggenburk*, 172 U.S.P.Q. (BNA) 82 (Bd. App. 1970).